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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/254,333	03/04/1999	RUDOLF SCHWARTE	1184-6LAM	6824
616	7590	10/06/2003	EXAMINER	
THE MAXHAM FIRM 750 "B" STREET, SUITE 3100 SAN DIEGO, CA 92101			LUU, THANH X	
			ART UNIT	PAPER NUMBER
			2878	

DATE MAILED: 10/06/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/254,333

Applicant(s)

SCHWARTE, RUDOLF

Examiner

Thanh X Luu

Art Unit

2878

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-34 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-34 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 February 1999 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3, 5.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. Figure 10 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

2. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Objections

3. Claims 7, 8, 10-16 and 20-34 are objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim cannot depend from any other multiple dependent claim. See MPEP § 608.01(n). Accordingly, the claims 7, 8, 10-16 and 20-34 have not been further treated on the merits.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1-6, 9 and 17-19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 1, it is unclear in its given context how many electromagnetic waves are being claimed. Further, "the charge carriers", "the space charge zone", "the

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incident electromagnetic wave", "the potential gradient", and "the charges q_a and q_b " lacks proper antecedent basis. It is also unclear what " U_o " is.

Regarding claim 2, it is unclear if an intensity-modulated electromagnetic wave is the same wave as claimed in claim 1 or a different wave. Further, "the electromagnetic wave" and "the push-pull modulation photogate voltages" lacks proper antecedent basis.

Regarding claim 3, "the charges q_{a1} and q_{b1} as well as q_{a2} and q_{b2} ", "the incident electromagnetic wave" and "the electromagnetic wave" lacks proper antecedent basis.

Regarding claim 4, "the charges q_a , q_b , q_c and q_d " and "the electromagnetic wave" lacks proper antecedent basis.

Regarding claim 5, "the intensity-modulated electromagnetic wave", "the transmitter", "the irradiated electromagnetic wave" and "the phase shift measured with said pixel" lacks proper antecedent basis.

Regarding claim 6, "the push-pull modulation photogate voltages", "the electromagnetic wave" and "the lock-in method" lacks proper antecedent basis.

Regarding claim 9, "photogate voltages U_{am} and U_{bm} " and "the difference image".

Regarding claim 17, "the incident electromagnetic wave" lacks proper antecedent basis.

Regarding claim 19, the term "preferably" is indefinite since it is unclear if the limitation following it is in the claimed invention or not.

Claim 18 is indefinite by virtue of its dependency on an indefinite claim.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 17-19, as understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Ma et al. (U.S. Patent 5,517,043) in view of Wen (U.S. Patent 4,873,561).

Regarding claims 17 and 18, Ma et al. disclose (see Figure 4) an element, comprising: at least one pixel; the pixel has at least two light-sensitive modulation photogates (404, 406); and accumulation gates (at 400 and 402). Ma et al. further disclose a middle gate (at 410) between the modulation photogates. Ma et al. do not specifically disclose the accumulation gates are shaded. Wen teaches (see column 4, lines 1-10) providing a shade in order to reduce ambient light interference and improve detection. Thus, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide a shade the accumulation gates in the apparatus of Ma et al. in view of Wen to improve detection.

Regarding claim 19, Ma et al. in view of Wen disclose the claimed invention as set forth above. Ma et al. and Wen do not specifically disclose four modulation photogates and accumulation gates. However, Ma et al. teach (see column 2, lines 60-68) splitting a photogate to provide higher speed exposure and readout. Thus, it would have been obvious to a person of ordinary skill in the art at the time the invention was

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made to provide four photogates and accumulation gates in the apparatus of Ma et al. in view of Wen to further increase the speed of detection.

Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thanh X. Luu whose telephone number is (703) 305-0539. The examiner can normally be reached on Monday-Friday from 6:30 AM - 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Porta, can be reached on (703) 308-4852. The fax phone number for the organization where the application or proceeding is assigned is (703) 308-7722.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

txl
September 23, 2003

Thanh X. Luu
Patent Examiner

Group Art Unit

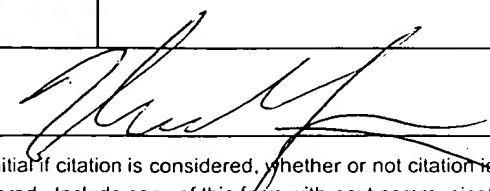
EXAMINER INITIAL	DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
TXL	5,155,363	10/92	STEINBICHLER et al.	250	341	
TXL	5,381,235	01/95	INQUE et al.	356	376	
TXL	5,646,733	7/97	BIEMAN	356	376	1/29/96
						RECEIVED
						JAN 23 2000

Technology Center 2600
TRANSLATION

[illegible]

Suzuki et al., "Real-time two-dimensional surface profile measurement in a sinusoidal phase-modulating laser diode interferometer," *Optical Engineering*, pp. 2754-2758 (Aug. 1994).

EXAMINER: Initial if citation is considered, whether or not citation is in conformance with MPEP § 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to the applicant.
(2/92 PTO)

Form PTO-1449 INFORMATION DISCLOSURE CITATION IN AN APPLICATION <i>(Use Several Sheets If Necessary)</i>				Docket No. 1184-6 LAM		Application No. 09/254,333	
				Applicant: RUDOLF SCHWARTE			
				Filing Date: 4 March 1999		Group Art Unit	
U.S. PATENT DOCUMENTS							
EXAMINER INITIAL	DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE	
JH	5,155,363	10/92	STEINBICHLER et al.	250	341		
JH	5,381,235	01/95	INOUE et al.	356	376		
JH	5,646,733	7/97	BIEMAN	356	376	1/29/96	
FOREIGN PATENT DOCUMENTS							
	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION	
						YES	NO
JH	4,439,298	6/96	GERMANY	G 01 S	7/481		X
JH	08,313,215	11/96	JAPAN	G 01 B	11/00	X	
OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)							
JH	Spirig et al., "The Lock-In CCD – Two-Dimensional Synchronous Detection of Light,"						
	IEEE Journal of Quantum Electronics, pp. 1705-1708, (Sept. 1995).						
JH	Suzuki et al., "Real-time two-dimensional surface profile measurement in a sinusoidal phase-modulating laser diode interferometer," Optical Engineering, pp. 2754-2758 (Aug. 1994).						
EXAMINER 				DATE CONSIDERED 9/03			
EXAMINER: Initial if citation is considered. Whether or not citation is in conformance with MPEP § 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to the applicant. (2/92 PTO)							